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Arg Asn Ile Thr Leu Leu Asn Gly Val Ala Ile Ile Val Gly Thr Ile  
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atc ggc tcg ggc atc ttc gtg acg ccc acg ggc gtg ctc aag gag gca 302  
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Ser Ile Val Gly Ala Leu Cys Tyr Ala Glu Leu Gly Thr Thr Ile Ser				
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Lys Ser Gly Gly Asp Tyr Ala Tyr Met Leu Glu Val Tyr Gly Ser Leu				
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Pro Ala Phe Leu Lys Leu Trp Ile Glu Leu Leu Ile Ile Arg Pro Ser				
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Ser Gln Tyr Ile Val Ala Leu Val Phe Ala Thr Tyr Leu Leu Lys Pro				
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Leu Phe Pro Thr Cys Pro Val Pro Glu Glu Ala Ala Lys Leu Val Ala				
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Cys Leu Cys Val Leu Leu Leu Thr Ala Val Asn Cys Tyr Ser Val Lys				
	180	185	190	
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Leu Ala Leu Ile Ile Leu Leu Gly Phe Val Gln Ile Gly Lys Gly Asp				
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Val Ser Asn Leu Asp Pro Asn Phe Ser Phe Glu Gly Thr Lys Leu Asp				
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gga tgg aat tac ttg aat ttc gtc aca gag gaa atg atc aac ccc tac				878
Gly Trp Asn Tyr Leu Asn Phe Val Thr Glu Glu Met Ile Asn Pro Tyr				
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Arg Asn Leu Pro Leu Ala Ile Ile Ile Ser Leu Pro Ile Val Thr Leu				
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Ser	Pro	Gly	Leu	Ala	Leu	Val	Val	Trp	Ala	Ala	Cys	Gly	Val	Phe	Ser
			85						90					95	

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Gly	Ser	Val	Asn	Gly	Ser	Leu	Phe	Thr	Ser	Ser	Arg	Leu	Phe	Phe	Val	340	345	350
Gly	Ser	Arg	Glu	Gly	His	Leu	Pro	Ser	Ile	Leu	Ser	Met	Ile	His	Pro	355	360	365
Gln	Leu	Leu	Thr	Pro	Val	Pro	Ser	Leu	Val	Phe	Thr	Cys	Val	Met	Thr	370	375	380
Leu	Leu	Tyr	Ala	Phe	Ser	Lys	Asp	Ile	Phe	Ser	Val	Ile	Asn	Phe	Phe	385	390	395

Ser Phe Phe Asn Trp Leu Cys Val Ala Leu Ala Ile Ile Gly Met Ile  
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tct 3455

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35 40 45  
Arg Asn Ile Thr Leu Ile Asn Gly Val Ala Ile Ile Val Gly Thr Ile  
50 55 60  
Ile Gly Ser Gly Ile Phe Val Thr Pro Thr Gly Val Leu Lys Glu Ala  
65 70 75 80  
Gly Ser Pro Gly Leu Ser Leu Val Val Trp Ala Val Cys Gly Val Phe  
85 90 95  
Ser Ile Val Gly Ala Leu Cys Tyr Ala Glu Leu Gly Thr Thr Ile Ser  
100 105 110  
Lys Ser Gly Gly Asp Tyr Ala Tyr Met Leu Glu Val Tyr Gly Ser Leu  
115 120 125  
Pro Ala Phe Leu Lys Leu Trp Ile Glu Leu Leu Ile Ile Arg Pro Ser  
130 135 140  
Ser Gln Tyr Ile Val Ala Leu Val Phe Ala Thr Tyr Leu Leu Lys Pro  
145 150 155 160  
Val Phe Pro Thr Cys Pro Val Pro Glu Glu Ala Ala Lys Leu Val Ala  
165 170 175  
Cys Leu Cys Val Leu Leu Leu Thr Ala Val Asn Cys Tyr Ser Val Lys  
180 185 190  
Ala Ala Thr Arg Val Gln Asp Ala Phe Ala Ala Ala Lys Leu Leu Ala  
195 200 205  
Leu Ala Leu Ile Ile Leu Leu Gly Phe Ile Gln Met Gly Lys Asp Ile  
210 215 220

Gly	Gln	Gly	Asp	Ala	Ser	Asn	Leu	His	Gln	Lys	Leu	Ser	Phe	Glu	Gly	225	230	235	240
Thr	Asn	Leu	Asp	Val	Gly	Asn	Ile	Val	Leu	Ala	Leu	Tyr	Ser	Gly	Leu	245	250	255	
Phe	Ala	Tyr	Gly	Gly	Trp	Asn	Tyr	Leu	Asn	Phe	Val	Thr	Glu	Glu	Met	260	265	270	
Ile	Asn	Pro	Tyr	Arg	Asn	Leu	Pro	Leu	Ala	Ile	Ile	Ile	Ser	Leu	Pro	275	280	285	
Ile	Val	Thr	Leu	Val	Tyr	Val	Leu	Thr	Asn	Leu	Ala	Tyr	Phe	Thr	Thr	290	295	300	
Leu	Ser	Thr	Asn	Gln	Met	Leu	Thr	Ser	Glu	Ala	Val	Ala	Val	Asp	Phe	305	310	315	320
Gly	Asn	Tyr	His	Leu	Gly	Val	Met	Ser	Trp	Ile	Ile	Pro	Val	Phe	Val	325	330	335	
Gly	Leu	Ser	Cys	Phe	Gly	Ser	Val	Asn	Gly	Ser	Leu	Phe	Thr	Ser	Ser	340	345	350	
Arg	Leu	Phe	Phe	Val	Gly	Ser	Arg	Glu	Gly	His	Leu	Pro	Ser	Ile	Leu	355	360	365	
Ser	Met	Ile	His	Pro	Gln	Leu	Leu	Thr	Pro	Val	Pro	Ser	Leu	Val	Phe	370	375	380	
Thr	Cys	Val	Met	Thr	Leu	Met	Tyr	Ala	Phe	Ser	Arg	Asp	Ile	Phe	Ser	385	390	395	400
Ile	Ile	Asn	Phe	Phe	Ser	Phe	Phe	Asn	Trp	Leu	Cys	Val	Ala	Leu	Ala	405	410	415	
Ile	Ile	Gly	Met	Met	Trp	Leu	Arg	Phe	Lys	Lys	Pro	Glu	Leu	Glu	Arg	420	425	430	
Pro	Ile	Lys	Val	Asn	Leu	Ala	Leu	Pro	Val	Phe	Phe	Ile	Leu	Ala	Cys	435	440	445	
Leu	Phe	Leu	Ile	Ala	Val	Ser	Phe	Trp	Lys	Thr	Pro	Leu	Glu	Cys	Gly	450	455	460	
Ile	Gly	Phe	Ala	Ile	Ile	Leu	Ser	Gly	Leu	Pro	Val	Tyr	Phe	Phe	Gly	465	470	475	480
Val	Trp	Trp	Lys	Asn	Lys	Pro	Lys	Trp	Ile	Leu	Gln	Val	Ile	Phe	Ser	485	490	495	
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<212> DNA

<213> Homo sapiens

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Met Ser Gln

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gac acc gag gtg gat atg aag gag gtg gag ctg aat gag tta gag ccc 166  
Asp Thr Glu Val Asp Met Lys Glu Val Glu Leu Asn Glu Leu Glu Pro  
5 10 15

gag aag cag ccg atg aac gcg gcg tct ggg gcg gcc atg tcc ctg gcg 214  
Glu Lys Gln Pro Met Asn Ala Ala Ser Gly Ala Ala Met Ser Leu Ala  
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gga gcc gag aag aat ggt ctg gtg aag atc aag gtg gcg gaa gac gag 262  
Gly Ala Glu Lys Asn Gly Leu Val Lys Ile Lys Val Ala Glu Asp Glu  
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gcg gag gcg gca gcc gcg gct aag ttc acg ggc ctg tcc aag gag gag 310  
Ala Glu Ala Ala Ala Ala Ala Lys Phe Thr Gly Leu Ser Lys Glu Glu  
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ctg ctg aag gtg gca ggc agc ccc ggc tgg gta cgc acc cgc tgg gca 358  
Leu Leu Lys Val Ala Gly Ser Pro Gly Trp Val Arg Thr Arg Trp Ala  
70 75 80

ctg ctg ctg ctc ttc tgg ctc ggc tgg ctc ggc atg ctt gct ggt gcc 406  
Leu Leu Leu Leu Phe Trp Leu Gly Trp Leu Gly Met Leu Ala Gly Ala  
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gtg gtc ata atc gtg cga gcg ccg cgt tgt cgc gag cta ccg gcg cag 454  
Val Val Ile Ile Val Arg Ala Pro Arg Cys Arg Glu Leu Pro Ala Gln  
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aag tgg tgg cac acg ggc gcc ctc tac cgc atc ggc gac ctt cag gcc 502  
Lys Trp Trp His Thr Gly Ala Leu Tyr Arg Ile Gly Asp Leu Gln Ala  
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ttc cag ggc cac ggc gcg ggc aac ctg gcg ggt ctg aag ggg cgt ctc 550  
Phe Gln Gly His Gly Ala Gly Asn Leu Ala Gly Leu Lys Gly Arg Leu  
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Asp	Tyr	Leu	Ser	Ser	Leu	Lys	Val	Lys	Gly	Leu	Val	Leu	Gly	Pro	Ile	
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cac	aag	aac	cag	aag	gat	gat	gtc	gct	cag	act	gac	ttg	ctg	cag	atc	646
His	Lys	Asn	Gln	Lys	Asp	Asp	Val	Ala	Gln	Thr	Asp	Leu	Leu	Gln	Ile	
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gac	ccc	aat	ttt	ggc	tcc	aag	gaa	gat	ttt	gac	agt	ctc	ttg	caa	tcg	694
Asp	Pro	Asn	Phe	Gly	Ser	Lys	Glu	Asp	Phe	Asp	Ser	Leu	Leu	Gln	Ser	
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gct	aaa	aaa	aag	agc	atc	cgt	gtc	att	ctg	gac	ctt	act	ccc	aac	tac	742
Ala	Lys	Lys	Lys	Ser	Ile	Arg	Val	Ile	Leu	Asp	Leu	Thr	Pro	Asn	Tyr	
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cgg	ggt	gag	aac	tcg	tgg	ttc	tcc	act	cag	gtt	gac	act	gtg	gcc	acc	790
Arg	Gly	Glu	Asn	Ser	Trp	Phe	Ser	Thr	Gln	Val	Asp	Thr	Val	Ala	Thr	
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aag	gtg	aag	gat	gct	ctg	gag	ttt	tgg	ctg	caa	gct	ggc	gtg	gat	ggg	838
Lys	Val	Lys	Asp	Ala	Leu	Glu	Phe	Trp	Leu	Gln	Ala	Gly	Val	Asp	Gly	
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Phe	Gln	Val	Arg	Asp	Ile	Glu	Asn	Leu	Lys	Asp	Ala	Ser	Ser	Phe	Leu	
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gct	gag	tgg	caa	aat	atc	acc	aag	ggc	ttc	agt	gaa	gac	agg	ctc	ttg	934
Ala	Glu	Trp	Gln	Asn	Ile	Thr	Lys	Gly	Phe	Ser	Glu	Asp	Arg	Leu	Leu	
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Ile	Ala	Gly	Thr	Asn	Ser	Ser	Asp	Leu	Gln	Gln	Ile	Leu	Ser	Leu	Leu	
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gaa	tcc	aac	aaa	gac	ttg	ctg	ttg	act	agc	tca	tac	ctg	tct	gat	tct	1030
Glu	Ser	Asn	Lys	Asp	Leu	Leu	Leu	Thr	Ser	Ser	Tyr	Leu	Ser	Asp	Ser	
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Gly	Ser	Thr	Gly	Glu	His	Thr	Lys	Ser	Leu	Val	Thr	Gln	Tyr	Leu	Asn	
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Ala	Thr	Gly	Asn	Arg	Trp	Cys	Ser	Trp	Ser	Leu	Ser	Gln	Ala	Arg	Leu	
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Leu	Thr	Ser	Phe	Leu	Pro	Ala	Gln	Leu	Leu	Arg	Leu	Tyr	Gln	Leu	Met	
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ctc	ttc	acc	ctg	cca	ggg	acc	cct	gtt	ttc	agc	tac	ggg	gat	gag	att	1222
Leu	Phe	Thr	Leu	Pro	Gly	Thr	Pro	Val	Phe	Ser	Tyr	Gly	Asp	Glu	Ile	
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ggc ctg gat gca gct gcc ctt cct gga cag cct atg gag gct cca gtc 1270  
 Gly Leu Asp Ala Ala Ala Leu Pro Gly Gln Pro Met Glu Ala Pro Val  
 375 380 385

atg ctg tgg gat gag tcc agc ttc cct gac atc cca ggg gct gta agt 1318  
 Met Leu Trp Asp Glu Ser Ser Phe Pro Asp Ile Pro Gly Ala Val Ser  
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 Ala Asn Met Thr Val Lys Gly Gln Ser Glu Asp Pro Gly Ser Leu Leu  
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tcc ttg ttc cgg cgg ctg agt gac cag cgg agt aag gag cgc tcc cta 1414  
 Ser Leu Phe Arg Arg Leu Ser Asp Gln Arg Ser Lys Glu Arg Ser Leu  
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ctg cat ggg gac ttc cac gcg ttc tcc gct ggg cct gga ctc ttc tcc 1462  
 Leu His Gly Asp Phe His Ala Phe Ser Ala Gly Pro Gly Leu Phe Ser  
 440 445 450

tat atc cgc cac tgg gac cag aat gag cgt ttt ctg gta gtg ctt aac 1510  
 Tyr Ile Arg His Trp Asp Gln Asn Glu Arg Phe Leu Val Val Leu Asn  
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 Phe Gly Asp Val Gly Leu Ser Ala Gly Leu Gln Ala Ser Asp Leu Pro  
 470 475 480

gcc agc gcc agc ctc cca gcc aag gct gac ctc ctg ctc agc acc cag 1606  
 Ala Ser Ala Ser Leu Pro Ala Lys Ala Asp Leu Leu Leu Ser Thr Gln  
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cca ggc cgt gag gag ggc tcc cct ctt gag ctg gaa cgc ctg aaa ctg 1654  
 Pro Gly Arg Glu Glu Gly Ser Pro Leu Glu Leu Glu Arg Leu Lys Leu  
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 Glu Pro His Glu Gly Leu Leu Leu Arg Phe Pro Tyr Ala Ala  
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Arg	Trp	Ala	Leu	Leu	Leu	Leu	Phe	Trp	Leu	Gly	Trp	Leu	Gly	Met	Leu
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Ala	Gly	Ala	Val	Val	Ile	Ile	Val	Arg	Ala	Pro	Arg	Cys	Arg	Glu	Leu
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Gly	Pro	Ile	His	Lys	Asn	Gln	Lys	Asp	Asp	Val	Ala	Gln	Thr	Asp	Leu
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Leu	Gln	Ser	Ala	Lys	Lys	Lys	Ser	Ile	Arg	Val	Ile	Leu	Asp	Leu	Thr
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Pro	Asn	Tyr	Arg	Gly	Glu	Asn	Ser	Trp	Phe	Ser	Thr	Gln	Val	Asp	Thr
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Val	Ala	Thr	Lys	Val	Lys	Asp	Ala	Leu	Glu	Phe	Trp	Leu	Gln	Ala	Gly
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Val	Asp	Gly	Phe	Gln	Val	Arg	Asp	Ile	Glu	Asn	Leu	Lys	Asp	Ala	Ser
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Ser	Phe	Leu	Ala	Glu	Trp	Gln	Asn	Ile	Thr	Lys	Gly	Phe	Ser	Glu	Asp
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Arg	Leu	Leu	Ile	Ala	Gly	Thr	Asn	Ser	Ser	Asp	Leu	Gln	Gln	Ile	Leu
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Ser	Leu	Leu	Glu	Ser	Asn	Lys	Asp	Leu	Leu	Leu	Thr	Ser	Ser	Tyr	Leu
	290					295					300				
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Tyr	Leu	Asn	Ala	Thr	Gly	Asn	Arg	Trp	Cys	Ser	Trp	Ser	Leu	Ser	Gln



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Gln	Leu	Met	Leu	Phe	Thr	Leu	Pro	Gly	Thr	Pro	Val	Phe	Ser	Tyr	Gly															
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Asp	Glu	Ile	Gly	Leu	Asp	Ala	Ala	Ala	Leu	Pro	Gly	Gln	Pro	Met	Glu															
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Ser	Leu	Leu	Ser	Leu	Phe	Arg	Arg	Leu	Ser	Asp	Gln	Arg	Ser	Lys	Glu															
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<211> 1797

<212> DNA

<213> Rat

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Val	Glu	Leu	Asn	Glu	Leu	Glu	Pro	Glu	Lys	Gln	Pro	Met	Asn	Ala	Ala	
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gac	ggg	gcg	gca	gcc	ggg	gag	aag	aac	ggg	ctg	gtg	aag	att	aag	gtg	148
Asp	Gly	Ala	Ala	Ala	Gly	Glu	Lys	Asn	Gly	Leu	Val	Lys	Ile	Lys	Val	
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Glu	Glu	Leu	Leu	Lys	Val	Ala	Gly	Ser	Pro	Gly	Trp	Val	Arg	Thr	Arg	
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Trp	Ala	Leu	Leu	Leu	Leu	Phe	Trp	Leu	Gly	Trp	Leu	Gly	Met	Leu	Ala	
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Gly	Ala	Val	Val	Ile	Ile	Val	Arg	Ala	Pro	Arg	Cys	Arg	Glu	Leu	Pro	
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Val	Gln	Arg	Trp	Trp	His	Lys	Gly	Ala	Leu	Tyr	Arg	Ile	Gly	Asp	Leu	
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cag	gcc	ttc	gta	ggc	ccg	gaa	gcg	aga	ggc	ata	gct	ggg	ctg	aag	aac	436
Gln	Ala	Phe	Val	Gly	Pro	Glu	Ala	Arg	Gly	Ile	Ala	Gly	Leu	Lys	Asn	
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His	Leu	Glu	Tyr	Leu	Ser	Thr	Leu	Lys	Val	Lys	Gly	Leu	Val	Leu	Gly	
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cca	att	cac	aag	aac	cag	aag	gat	gaa	gtc	aat	gaa	acc	gac	ttg	aaa	532
Pro	Ile	His	Lys	Asn	Gln	Lys	Asp	Glu	Val	Asn	Glu	Thr	Asp	Leu	Lys	
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cag	att	gat	ccc	gat	tta	ggc	tcc	cag	gaa	gat	ttt	aaa	gac	ctt	cta	580
Gln	Ile	Asp	Pro	Asp	Leu	Gly	Ser	Gln	Glu	Asp	Phe	Lys	Asp	Leu	Leu	
			175					180					185			
caa	agt	gcc	aag	aaa	aag	agc	att	cac	atc	att	ttg	gac	ctc	act	ccc	628
Gln	Ser	Ala	Lys	Lys	Lys	Ser	Ile	His	Ile	Ile	Leu	Asp	Leu	Thr	Pro	
		190					195					200				
aac	tat	aag	ggc	cag	aat	gca	tgg	ttc	ctc	cct	cct	cag	gct	gac	att	676
Asn	Tyr	Lys	Gly	Gln	Asn	Ala	Trp	Phe	Leu	Pro	Pro	Gln	Ala	Asp	Ile	
	205					210					215					

gta gcc acc aaa atg aag gag gct ctg agt tct tgg ttg cag gac ggt	724
Val Ala Thr Lys Met Lys Glu Ala Leu Ser Ser Trp Leu Gln Asp Gly	
220 225 230 235	
gtg gat ggg ttc caa gtt cgg gat gtg gga aag ctg gcg aat gca tcc	772
Val Asp Gly Phe Gln Val Arg Asp Val Gly Lys Leu Ala Asn Ala Ser	
240 245 250	
ttg tac ttg gct gag tgg cag aat atc acc aag aac ttc agt gag gac	820
Leu Tyr Leu Ala Glu Trp Gln Asn Ile Thr Lys Asn Phe Ser Glu Asp	
255 260 265	
agg ctt ttg att gca ggg acc gcg tcc tct gac ctg caa caa att gtc	868
Arg Leu Leu Ile Ala Gly Thr Ala Ser Ser Asp Leu Gln Gln Ile Val	
270 275 280	
aac ata ctt gaa tcc acc agc gat ctg ctg ctg acc agc tca tac ctg	916
Asn Ile Leu Glu Ser Thr Ser Asp Leu Leu Leu Thr Ser Ser Tyr Leu	
285 290 295	
tca cag ccc gtt ttc act ggg gag cat gca gaa ctc cta gtg att aag	964
Ser Gln Pro Val Phe Thr Gly Glu His Ala Glu Leu Leu Val Ile Lys	
300 305 310 315	
tat ttg aat gcc act ggc agc cgc tgg tgc agc tgg agt gtg tcg cag	1012
Tyr Leu Asn Ala Thr Gly Ser Arg Trp Cys Ser Trp Ser Val Ser Gln	
320 325 330	
gca gga ctc ctg aca tcc ttt ata ccg gct cag ttt ctc cga ctc tac	1060
Ala Gly Leu Leu Thr Ser Phe Ile Pro Ala Gln Phe Leu Arg Leu Tyr	
335 340 345	
cag ctg ctg ctc ttc act ctg cca gga act cct gtt ttc agc tat ggg	1108
Gln Leu Leu Leu Phe Thr Leu Pro Gly Thr Pro Val Phe Ser Tyr Gly	
350 355 360	
gat gag ctt ggc ctt cag gca gtt gcc ctt cct gga cag cct atg gag	1156
Asp Glu Leu Gly Leu Gln Ala Val Ala Leu Pro Gly Gln Pro Met Glu	
365 370 375	
gct cca ttc atg ctg tgg aat gag tct agc aac tcc caa acc tca agt	1204
Ala Pro Phe Met Leu Trp Asn Glu Ser Ser Asn Ser Gln Thr Ser Ser	
380 385 390 395	
cct gta agc ctc aac atg aca gtg aag ggc caa aat gaa gac ccc ggc	1252
Pro Val Ser Leu Asn Met Thr Val Lys Gly Gln Asn Glu Asp Pro Gly	
400 405 410	
tcc ctc ctc acc cag ttc cgg cga ctg agt gac ctc cgt ggt aag gag	1300
Ser Leu Leu Thr Gln Phe Arg Arg Leu Ser Asp Leu Arg Gly Lys Glu	
415 420 425	
cgc tct ctg tta cac ggt gac ttt gat gca ctg tct tcc tca tct ggg	1348
Arg Ser Leu Leu His Gly Asp Phe Asp Ala Leu Ser Ser Ser Ser Gly	
430 435 440	

ctc ttc tcc tac gtc cgc cac tgg gac cag aat gag cgt tac ctg gtg 1396  
 Leu Phe Ser Tyr Val Arg His Trp Asp Gln Asn Glu Arg Tyr Leu Val  
 445 450 455

gtg ctc aac ttc cag gat gtg ggc ctg tca gcc agg gta gga gcc tcc 1444  
 Val Leu Asn Phe Gln Asp Val Gly Leu Ser Ala Arg Val Gly Ala Ser  
 460 465 470 475

aac ctc cct gct ggc ata agc ctg cca gcc agt gct aac ctt ttg ctt 1492  
 Asn Leu Pro Ala Gly Ile Ser Leu Pro Ala Ser Ala Asn Leu Leu Leu  
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agt act gac agc acc cgg cta agc cgt gag gag ggc acc tcc ctg agc 1540  
 Ser Thr Asp Ser Thr Arg Leu Ser Arg Glu Glu Gly Thr Ser Leu Ser  
 495 500 505

ctg gaa aac ctg agc ctg aat cct tat gag ggc ttg ttg tta cag ttc 1588  
 Leu Glu Asn Leu Ser Leu Asn Pro Tyr Glu Gly Leu Leu Leu Gln Phe  
 510 515 520

cct ttt gtg gcc tga tccctctaca cagaacctgc cacccttctt tcctctctca 1643  
 Pro Phe Val Ala  
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ggcctttgga attctggtct ttctctcctt attttgtttt tgtttttaaa cttttgcaga 1703

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 35 40 45

Glu Ala Gly Val Lys Phe Thr Gly Leu Ser Lys Glu Glu Leu Leu Lys  
 50 55 60

Val Ala Gly Ser Pro Gly Trp Val Arg Thr Arg Trp Ala Leu Leu Leu  
 65 70 75 80

Leu Phe Trp Leu Gly Trp Leu Gly Met Leu Ala Gly Ala Val Val Ile  
 85 90 95

Ile Val Arg Ala Pro Arg Cys Arg Glu Leu Pro Val Gln Arg Trp Trp  
 100 105 110

His Lys Gly Ala Leu Tyr Arg Ile Gly Asp Leu Gln Ala Phe Val Gly  
 115 120 125

Pro Glu Ala Arg Gly Ile Ala Gly Leu Lys Asn His Leu Glu Tyr Leu  
 130 135 140

Ser Thr Leu Lys Val Lys Gly Leu Val Leu Gly Pro Ile His Lys Asn  
 145 150 155 160

Gln Lys Asp Glu Val Asn Glu Thr Asp Leu Lys Gln Ile Asp Pro Asp  
 165 170 175

Leu Gly Ser Gln Glu Asp Phe Lys Asp Leu Leu Gln Ser Ala Lys Lys  
 180 185 190

Lys Ser Ile His Ile Ile Leu Asp Leu Thr Pro Asn Tyr Lys Gly Gln  
 195 200 205

Asn Ala Trp Phe Leu Pro Pro Gln Ala Asp Ile Val Ala Thr Lys Met  
 210 215 220

Lys Glu Ala Leu Ser Ser Trp Leu Gln Asp Gly Val Asp Gly Phe Gln  
 225 230 235 240

Val Arg Asp Val Gly Lys Leu Ala Asn Ala Ser Leu Tyr Leu Ala Glu  
 245 250 255

Trp Gln Asn Ile Thr Lys Asn Phe Ser Glu Asp Arg Leu Leu Ile Ala  
 260 265 270

Gly Thr Ala Ser Ser Asp Leu Gln Gln Ile Val Asn Ile Leu Glu Ser  
 275 280 285

Thr Ser Asp Leu Leu Leu Thr Ser Ser Tyr Leu Ser Gln Pro Val Phe  
 290 295 300

Thr Gly Glu His Ala Glu Leu Leu Val Ile Lys Tyr Leu Asn Ala Thr  
 305 310 315 320

Gly Ser Arg Trp Cys Ser Trp Ser Val Ser Gln Ala Gly Leu Leu Thr  
 325 330 335

Ser Phe Ile Pro Ala Gln Phe Leu Arg Leu Tyr Gln Leu Leu Leu Phe  
 340 345 350

Thr Leu Pro Gly Thr Pro Val Phe Ser Tyr Gly Asp Glu Leu Gly Leu  
 355 360 365

Gln Ala Val Ala Leu Pro Gly Gln Pro Met Glu Ala Pro Phe Met Leu  
 370 375 380

Trp Asn Glu Ser Ser Asn Ser Gln Thr Ser Ser Pro Val Ser Leu Asn  
 385 390 395 400

Met Thr Val Lys Gly Gln Asn Glu Asp Pro Gly Ser Leu Leu Thr Gln  
 405 410 415

Phe Arg Arg Leu Ser Asp Leu Arg Gly Lys Glu Arg Ser Leu Leu His  
420 425 430

Gly Asp Phe Asp Ala Leu Ser Ser Ser Ser Gly Leu Phe Ser Tyr Val  
435 440 445

Arg His Trp Asp Gln Asn Glu Arg Tyr Leu Val Val Leu Asn Phe Gln  
450 455 460

Asp Val Gly Leu Ser Ala Arg Val Gly Ala Ser Asn Leu Pro Ala Gly  
465 470 475 480

Ile Ser Leu Pro Ala Ser Ala Asn Leu Leu Leu Ser Thr Asp Ser Thr  
485 490 495

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<222> (1)..(22)

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22

<210> 10

<211> 22

<212> DNA

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<400> 10

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22

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24

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gtggatgggt tccaggttcg ggac

24

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tgctgtggga tgagtccagc ttcc

24

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<400> 14

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24

<210> 15

<211> 24

<212> DNA

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<400> 15

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<210> 16

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<400> 16

actgtcaaaa tcttccttgg agcc

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<210> 17

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<212> DNA

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<400> 18  
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<400> 19  
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synthesized primer sequence

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synthesized primer sequence

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22

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21

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cttgtttttc caccagaccc cg

22

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# synthesized primer sequence

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<400> 25
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<210> 26
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<212> RNA
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<220>
<221> CDS
<222> (1)..(1524)

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Met Ala Gly Ala Gly Pro Lys Arg Arg Ala Leu Ala Ala Pro Ala Ala
  1             5             10             15

gag gag aag gaa gag gcg cgg gag aag aug cug gcc gcc aag agc gcg      96
Glu Glu Lys Glu Glu Ala Arg Glu Lys Met Leu Ala Ala Lys Ser Ala
          20             25             30

gac ggc ucg gcg ccg gca ggc gag ggc gag ggc gug acc cug cag cgg      144
Asp Gly Ser Ala Pro Ala Gly Glu Gly Glu Gly Val Thr Leu Gln Arg
          35             40             45

aac auc acg cug cuc aac ggc gug gcc auc auc gug ggg acc auu auc      192
Asn Ile Thr Leu Leu Asn Gly Val Ala Ile Ile Val Gly Thr Ile Ile
          50             55             60

ggc ucg ggc auc uuc gug acg ccc acg ggc gug cuc aag gag gca ggc      240
Gly Ser Gly Ile Phe Val Thr Pro Thr Gly Val Leu Lys Glu Ala Gly
          65             70             75             80

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ucg ccg ggg cug gcg cug gug gug ugg gcc gcg ugc ggc guc uuc ucc	288
Ser Pro Gly Leu Ala Leu Val Val Trp Ala Ala Cys Gly Val Phe Ser	
85 90 95	
auc gug ggc gcg cuc ugc uac gcg gag cuc ggc acc acc auc ucc aaa	336
Ile Val Gly Ala Leu Cys Tyr Ala Glu Leu Gly Thr Thr Ile Ser Lys	
100 105 110	
ucg ggc ggc gac uac gcc uac aug cug gag guc uac ggc ugc cug ccc	384
Ser Gly Gly Asp Tyr Ala Tyr Met Leu Glu Val Tyr Gly Ser Leu Pro	
115 120 125	
gcc uuc cuc aag cuc ugg auc gag cug cuc auc auc cgg ccu uca ugc	432
Ala Phe Leu Lys Leu Trp Ile Glu Leu Leu Ile Ile Arg Pro Ser Ser	
130 135 140	
cag uac auc gug gcc cug guc uuc gcc acc uac cug cuc aag ccg cuc	480
Gln Tyr Ile Val Ala Leu Val Phe Ala Thr Tyr Leu Leu Lys Pro Leu	
145 150 155 160	
uuc ccc acc ugc ccg gug ccc gag gag gca gcc aag cuc gug gcc ugc	528
Phe Pro Thr Cys Pro Val Pro Glu Glu Ala Ala Lys Leu Val Ala Cys	
165 170 175	
cuc ugc gug cug cug cuc acg gcc gug aac ugc uac agc gug aag gcc	576
Leu Cys Val Leu Leu Leu Thr Ala Val Asn Cys Tyr Ser Val Lys Ala	
180 185 190	
gcc acc cgg guc cag gau gcc uuu gcc gcc gcc aag cuc cug gcc cug	624
Ala Thr Arg Val Gln Xaa Ala Phe Ala Ala Ala Lys Leu Leu Ala Leu	
195 200 205	
gcc cug auc auc cug cug ggc uuc guc cag auc ggg aag ggu gau gug	672
Ala Leu Ile Ile Leu Leu Gly Phe Val Gln Ile Gly Lys Gly Xaa Val	
210 215 220	
ucc aaU cua gau ccc aac uuc uca uuu gaa ggc acc aaa cug gau gug	720
Ser Asn Leu Xaa Pro Asn Phe Ser Phe Glu Gly Thr Lys Leu Xaa Val	
225 230 235 240	
ggg aac auu gug cug gca uua uac agc ggc cuc uuu gcc uau gga gga	768
Gly Asn Ile Val Leu Ala Leu Tyr Ser Gly Leu Phe Ala Tyr Gly Gly	
245 250 255	
ugg aaU uac uug aaU uuc guc aca gag gaa aug auc aac ccc uac aga	816
Trp Asn Tyr Leu Asn Phe Val Thr Glu Glu Met Ile Asn Pro Tyr Arg	
260 265 270	
aac cug ccc cug gcc auc auc auc ucc cug ccc auc gug acg cug gug	864
Asn Leu Pro Leu Ala Ile Ile Ile Ser Leu Pro Ile Val Thr Leu Val	
275 280 285	
uac gug cug acc aac cug gcc uac uuc acc acc cug ucc acc gag cag	912
Tyr Val Leu Thr Asn Leu Ala Tyr Phe Thr Thr Leu Ser Thr Glu Gln	
290 295 300	
aug cug ugc ucc gag gcc gug gcc gug gac uuc ggg aac uau cac cug	960

Met	Leu	Ser	Ser	Glu	Ala	Val	Ala	Val	Asp	Phe	Gly	Asn	Tyr	His	Leu	
305					310					315					320	
ggc	guc	aug	ucc	ugg	auc	auc	ccc	guc	uuc	gug	ggc	cug	ucc	ugc	uuc	1008
Gly	Val	Met	Ser	Trp	Ile	Ile	Pro	Val	Phe	Val	Gly	Leu	Ser	Cys	Phe	
				325					330					335		
ggc	ucc	guc	aaU	ggg	ucc	cug	uuc	aca	ucc	ucc	agg	cuc	uuc	uuc	gug	1056
Gly	Ser	Val	Asn	Gly	Ser	Leu	Phe	Thr	Ser	Ser	Arg	Leu	Phe	Phe	Val	
			340					345					350			
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Gly	Ser	Arg	Glu	Gly	His	Leu	Pro	Ser	Ile	Leu	Ser	Met	Ile	His	Pro	
		355					360					365				
cag	cuc	cuc	acc	ccc	gug	ccg	ucc	cuc	gug	uuc	acg	ugu	gug	aug	acg	1152
Gln	Leu	Leu	Thr	Pro	Val	Pro	Ser	Leu	Val	Phe	Thr	Cys	Val	Met	Thr	
	370					375					380					
cug	cuc	uac	gcc	uuc	ucc	aag	gac	auc	uuc	ucc	guc	auc	aac	uuc	uuc	1200
Leu	Leu	Tyr	Ala	Phe	Ser	Lys	Asp	Ile	Phe	Ser	Val	Ile	Asn	Phe	Phe	
385					390					395					400	
agc	uuc	uuc	aac	ugg	cuc	ugc	gug	gcc	cug	gcc	auc	auc	ggc	aug	auc	1248
Ser	Phe	Phe	Asn	Trp	Leu	Cys	Val	Ala	Leu	Ala	Ile	Ile	Gly	Met	Ile	
			405					410					415			
ugg	cug	cgc	cac	aga	aag	ccu	gag	cuu	gag	cgg	ccc	auc	aag	gug	aac	1296
Trp	Leu	Arg	His	Arg	Lys	Pro	Glu	Leu	Glu	Arg	Pro	Ile	Lys	Val	Asn	
			420				425						430			
cug	gcc	cug	ccu	gug	uuc	uuc	auc	cug	gcc	ugc	cuc	uuc	cug	auc	gcc	1344
Leu	Ala	Leu	Pro	Val	Phe	Phe	Ile	Leu	Ala	Cys	Leu	Phe	Leu	Ile	Ala	
	435						440				445					
guc	ucc	uuc	ugg	aag	aca	ccc	gug	gag	ugu	ggc	auc	ggc	uuc	acc	auc	1392
Val	Ser	Phe	Trp	Lys	Thr	Pro	Val	Glu	Cys	Gly	Ile	Gly	Phe	Thr	Ile	
	450					455				460						
auc	cuc	agc	ggg	cug	ccc	guc	uac	uuc	uuc	ggg	guc	ugg	ugg	aaa	aac	1440
Ile	Leu	Ser	Gly	Leu	Pro	Val	Tyr	Phe	Phe	Gly	Val	Trp	Trp	Lys	Asn	
465					470					475					480	
aag	ccc	aag	ugg	cuc	cuc	cag	ggc	auc	uuc	ucc	acg	acc	guc	cug	ugu	1488
Lys	Pro	Lys	Trp	Leu	Leu	Gln	Gly	Ile	Phe	Ser	Thr	Thr	Val	Leu	Cys	
			485					490					495			
cag	aag	cuc	aug	cag	gug	guc	ccc	cag	gag	aca	uag					1524
Gln	Lys	Leu	Met	Gln	Val	Val	Pro	Gln	Glu	Thr						
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<211> 1590

<212> RNA

<213> Homo sapiens

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<222> (1)..(1590)

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Leu Glu Pro Glu Lys Gln Pro Met Asn Ala Ala Ser Gly Ala Ala Met	
20 25 30	
ucc cug gcg gga gcc gag aag aaU ggu cug gug aag auc aag gug gcg	144
Ser Leu Ala Gly Ala Glu Lys Asn Gly Leu Val Lys Ile Lys Val Ala	
35 40 45	
gaa gac gag gcg gag gcg gca gcc gcg gcu aag uuc acg ggc cug ucc	192
Glu Asp Glu Ala Glu Ala Ala Ala Ala Lys Phe Thr Gly Leu Ser	
50 55 60	
aag gag gag cug cug aag gug gca ggc agc ccc ggc ugg gua cgc acc	240
Lys Glu Glu Leu Leu Lys Val Ala Gly Ser Pro Gly Trp Val Arg Thr	
65 70 75 80	
cgc ugg gca cug cug cug cuc uuc ugg cuc ggc ugg cuc ggc aug cuu	288
Arg Trp Ala Leu Leu Leu Leu Phe Trp Leu Gly Trp Leu Gly Met Leu	
85 90 95	
gcu ggu gcc gug guc aua auc gug cga gcg ccg cgu ugu cgc gag cua	336
Ala Gly Ala Val Val Ile Ile Val Arg Ala Pro Arg Cys Arg Glu Leu	
100 105 110	
ccg gcg cag aag ugg ugg cac acg ggc gcc cuc uac cgc auc ggc gac	384
Pro Ala Gln Lys Trp Trp His Thr Gly Ala Leu Tyr Arg Ile Gly Asp	
115 120 125	
cuu cag gcc uuc cag ggc cac ggc gcg ggc aac cug gcg ggu cug aag	432
Leu Gln Ala Phe Gln Gly His Gly Ala Gly Asn Leu Ala Gly Leu Lys	
130 135 140	
ggg cgu cuc gau uac cug agc ucu cug aag gug aag ggc cuu gug cug	480
Gly Arg Leu Xaa Tyr Leu Ser Ser Leu Lys Val Lys Gly Leu Val Leu	
145 150 155 160	
ggu cca auu cac aag aac cag aag gau gau guc gcu cag acu gac uug	528
Gly Pro Ile His Lys Asn Gln Lys Xaa Xaa Val Ala Gln Xaa Asp Leu	
165 170 175	
cug cag auc gac ccc aaU uuU ggc ucc aag gaa gau uuU gac agu cuc	576
Leu Gln Ile Asp Pro Asn Phe Gly Ser Lys Glu Xaa Phe Asp Ser Leu	
180 185 190	
uug caa ucg gcu aaa aaa aag agc auc cgu guc auu cug gac cuu acu	624
Leu Gln Ser Ala Lys Lys Lys Ser Ile Arg Val Ile Leu Asp Leu Xaa	
195 200 205	

ccc aac uac cgg ggu gag aac ucg ugg uuc ucc acu cag guu gac acu	672
Pro Asn Tyr Arg Gly Glu Asn Ser Trp Phe Ser Xaa Gln Val Asp Xaa	
210 215 220	
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Val Ala Thr Lys Val Lys Xaa Ala Leu Glu Phe Trp Leu Gln Ala Gly	
225 230 235 240	
gug gau ggg uuc cag guu cgg gac aua gag aaU cug aag gau gca ucc	768
Val Xaa Gly Phe Gln Val Arg Asp Ile Glu Asn Leu Lys Xaa Ala Ser	
245 250 255	
uca uuc uug gcu gag ugg caa aaU auc acc aag ggc uuc agu gaa gac	816
Ser Phe Leu Ala Glu Trp Gln Asn Ile Thr Lys Gly Phe Ser Glu Asp	
260 265 270	
agg cuc uug auu gcg ggg acu aac ucc ucc gac cuu cag cag auc cug	864
Arg Leu Leu Ile Ala Gly Xaa Asn Ser Ser Asp Leu Gln Gln Ile Leu	
275 280 285	
agc cua cuc gaa ucc aac aaa gac uug cug uug acu agc uca uac cug	912
Ser Leu Leu Glu Ser Asn Lys Asp Leu Leu Leu Xaa Ser Ser Tyr Leu	
290 295 300	
ucu gau ucu ggu ucu acu ggg gag cau aca aaa ucc cua guc aca cag	960
Ser Xaa Ser Gly Ser Xaa Gly Glu His Thr Lys Ser Leu Val Thr Gln	
305 310 315 320	
uau uug aaU gcc acu ggc aaU cgc ugg ugc agc ugg agu uug ucu cag	1008
Tyr Leu Asn Ala Xaa Gly Asn Arg Trp Cys Ser Trp Ser Leu Ser Gln	
325 330 335	
gca agg cuc cug acu ucc uuc uug ccg gcu caa cuu cuc cga cuc uac	1056
Ala Arg Leu Leu Xaa Ser Phe Leu Pro Ala Gln Leu Leu Arg Leu Tyr	
340 345 350	
cag cug aug cuc uuc acc cug cca ggg acc ccu guu uuc agc uac ggg	1104
Gln Leu Met Leu Phe Thr Leu Pro Gly Thr Pro Val Phe Ser Tyr Gly	
355 360 365	
gau gag auu ggc cug gau gca gcu gcc cuu ccu gga cag ccu aug gag	1152
Xaa Glu Ile Gly Leu Xaa Ala Ala Ala Leu Pro Gly Gln Pro Met Glu	
370 375 380	
gcu cca guc aug cug ugg gau gag ucc agc uuc ccu gac auc cca ggg	1200
Ala Pro Val Met Leu Trp Xaa Glu Ser Ser Phe Pro Asp Ile Pro Gly	
385 390 395 400	
gcu gua agu gcc aac aug acu gug aag ggc cag agu gaa gac ccu ggc	1248
Ala Val Ser Ala Asn Met Xaa Val Lys Gly Gln Ser Glu Asp Pro Gly	
405 410 415	
ucc cuc cuu ucc uug uuc cgg cgg cug agu gac cag cgg agu aag gag	1296
Ser Leu Leu Ser Leu Phe Arg Arg Leu Ser Asp Gln Arg Ser Lys Glu	
420 425 430	
cgc ucc cua cug cau ggg gac uuc cac gcg uuc ucc gcu ggg ccu gga	1344

[illegible]